

REMARKS/ARGUMENTS

This response is timely filed as it is filed within the three (3) month shortened statutory period for response to the outstanding Office Action.

It is understood that the marking of the Office Action as “final” on the included Office Action Summary sheet was an inadvertent error as the Office Action is also marked as “non-final” on the Office Action Summary sheet and the included DETAILED ACTION states that the finality of the previous office action has been withdrawn.

Election/Restrictions

In view of an earlier election/restriction requirement and corresponding response, claims 52, 53, 60, 67 and 68 have been withdrawn as directed to earlier non-elected species.

Claims 39-72 remain in the application with claims with claims 52, 53, 60, 67 and 68 having been withdrawn from consideration.

Claim Rejections - 35 U.S.C. §103

1. **Claims 39-51 have been rejected under 35 U.S.C. §103(a) as being unpatentable over WO 02085817 to Kubo et al., English language equivalent being US 20040159381 (hereinafter “Kubo”).**

The Office Action cites Kubo as disclosing slurry mixing of oxidizer such as copper hydroxide and fuel such as 5-aminotetrazole and subsequent heating.

The Office Action contends that:

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the claimed compounds present in the composition since they will form upon reaction of two compounds that are combined in a slurry and then added to the composition. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the gas generant composition to achieve a desired result.

These rejections are respectfully traversed.

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These rejections are based on the premise that copper hydroxide and 5-aminotetrazole, upon slurry mixing as disclosed in Kubo, will react to form the metal aminotetrazole hydroxide compound of the claimed invention.

5 It is respectfully submitted that there has been no prior art showing or suggestion that copper hydroxide and 5-aminotetrazole, upon slurry mixing as disclosed in Kubo, will react to form the metal aminotetrazole hydroxide compound of the claimed invention.

10 To further facilitate and expedite consideration of the application, reference is made to the accompanying document entitled "DECLARATION OF DR. IVAN V. MENDENHALL". The Declaration of Dr. Mendenhall sets forth further evidence and facts in support of the patentability of the pending claims over the prior art of record. More particularly, the Declaration of Dr. Mendenhall sets forth that the slurry mixing of oxidizer such as copper hydroxide and fuel such as 5-aminotetrazole, as set forth in the Office Action as disclosed in Kubo, does not result in the formation of metal aminotetrazole hydroxides, particularly copper aminotetrazole hydroxides, in accordance with the invention. In particular, in the mixing of 5-aminotetrazole in the presence of a copper-containing oxidizer, such as copper hydroxide, and a stoichiometric excess of ammonium nitrate, as described in Kubo, the high affinity of copper for ammonia causes the preferential formation of a copper ammine complex preventing the formation of copper aminotetrazole hydroxide.

20 In view of the above, it is respectfully submitted that independent claim 39, which is directed to a method and requires "adding a quantity of at least one metal aminotetrazole hydroxide to a gas generant formulation whereby after the addition the gas generant formulation has an increased burn rate as compared to the gas generant formulation prior to the addition", is not shown or suggested by the cited art. Correspondingly, claims 25 40-51, which claims are dependent on claim 39, are similarly not shown or suggested by the cited art.

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For at least the above-stated reasons, claims 39-51 are believed patentable over the prior art of record and notification to that effect is solicited.

5 **2. Claims 54-59, 61-66 and 69-72 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kubo as applied to claims 39-51 above, and further in view of U.S. Patent 6,143,102 to Mendenhall et al. (hereinafter “Mendenhall”).**

The Office Action cites Mendenhall as disclosing a gas generating composition that comprises BCN (i.e., basic copper nitrate) and GN (i.e., guanidine nitrate).

10 The Office Action further asserts that:

It is prima facie obvious to combine two compositions, each taught for the same purpose to yield a third composition for that very purpose. [Citations omitted.]

15 The Office Action provides no further elaboration or discussion of this basis of rejection.

These rejections are respectfully traversed.

Claims 54-59 and 61 are dependent on claim 39, discussed above.

20 Claim 62 is an independent claim with claims 63-66 and 69-71 dependent thereon. Independent claim 62 is directed to a method and requires “adding a quantity of at least about 1 composition weight percent of copper aminotetrazole hydroxide having an empirical formula of $\text{Cu}(\text{CH}_2\text{N}_3)\text{OH}$ to a gas generant formulation whereby after the addition the gas generant formulation has an increased burn rate as compared to the gas generant formulation prior to the addition.”

25 Claim 72 is an independent claim and is directed to a method for increasing the burn rate of a gas generant formulation and requires:

“including a quantity of copper aminotetrazole hydroxide in a gas generant formulation comprising:

30 a primary fuel component selected from the group consisting of copper bis-guanyl urea dinitrate, guanidine nitrate and mixtures thereof; and

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a primary oxidizer component selected from the group consisting of ammonium nitrate, basic copper nitrate, copper diammine dinitrate and mixtures of ammonium nitrate and copper diammine dinitrate,

the gas generant formulation including the quantity of copper aminotetrazole hydroxide having an increased burn rate as compared to the gas generant formulation without the inclusion of the quantity of copper aminotetrazole hydroxide.”

As set forth above, Kubo neither shows nor suggests the metal aminotetrazole hydroxide compound, particularly the copper aminotetrazole hydroxide of the claimed invention. Such shortcoming is in no way overcome by or as a result of the proposed combination of Mendenhall therewith.

For at least the above-stated reasons, claims 54-59, 61-66 and 69-72 are believed patentable over the prior art of record and notification to that effect is solicited.

Withdrawn Claims

Claims 52, 53, 60, 67 and 68 presently stand withdrawn from consideration.

Claims 52, 53 and 60 are dependent on claim 39 and claims 67 and 68 are dependent on claim 62. As submitted above, claims 39 and 62 are believed to be patentable over the prior art of record. Claims 39 and 62 are believed to be generic such that upon the allowance of these claims, Applicants are entitled to consideration of those claims to additional species which are written in dependent form. In view thereof, previously withdrawn claims 52, 53, 60, 67 and 68 are believed to be in condition for allowance and notification to that effect is solicited.

Conclusion

Applicants intend to be fully responsive to the Action. Should the Examiner detect any remaining issue or have any question, the Examiner is kindly requested to contact the undersigned, preferably by telephone, in an effort to expedite examination of the application.

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In view of the above, favorable reconsideration and withdrawal of the outstanding rejections of the pending claims are respectfully requested in view of at least the above comments. Applicants sincerely believe that this Patent Application is now in condition for allowance and, thus, respectfully request a notification of allowance.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Nick C. Kottis".

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